



PATENT SPECIFICATION

NO DRAWINGS

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COMPLETE SPECIFICATION

Improvements relating to Textile Articles

We, SOCIETE RHODIACETA, a French Body Corporate, of 21, Rue Jean-Goujon, Paris (8°), France, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to textile articles, in particular fabrics, showing a crepe effect, and is an improvement in or modification of the invention described in our Specifications Nos. 804,151 and 896,272.

In our Specification No. 804,151 we have described the production of textile articles exhibiting a relief effect, the said articles consisting essentially of filaments with a polyamide base and filaments with a polyester base, all of which are fully shrunk, the polyamide filaments being in relief with respect to the polyester filaments. In order to obtain this effect, a textile article formed by mixtures of fully or partially shrunk polyamide filaments and of the polyester filaments having a shrinkage capacity greater than that of the polyamide filaments, more especially polyester filaments referred to as "unshrunk", is heated to a temperature of at least 180°. By "unshrunk" filaments is meant filaments which may have been partially shrunk but are still capable of further shrinkage.

In our Specification No. 896,272 we describe a modification of the above invention in which the "unshrunk" polyester filaments have a shrinkage capacity at 100°C. of at least 15%, and the other component may comprise any filaments of lower shrinkage capacity, whether synthetic (including polyester and polyamide), artificial or natural or a blend of more than one type, and the article is heated to 80° — 180°C. and preferably to about 100°C.

In one aspect the present invention consists in a process which comprises heating, at least to a temperature of 80°C. and preferably to a

temperature of 80° — 180°C. a fabric in which polyester thread of shrinkage capacity at 100°C. of at least 15% constitutes substantially half the weight of the threads in the warp and weft together, which are in a repetition of at most 4, the remainder being of thread of lower shrinkage capacity. The fabrics so produced, which also are comprehended within the scope of the invention, are characterised by having a crepe appearance.

In textile language, the expression "repetition" designates the number of threads constituting the sequence of warping or shuttling.

One well known process for obtaining crepe fabrics of natural or artificial threads consists in weaving highly twisted threads, the twist of which has been temporarily set as by steaming or sizing, the crepe effect appearing on the subsequent degumming or desizing, which frees the mechanical reactions of the threads. The existence of a torque in these highly twisted threads makes essential the alteration of the threads with a right-hand twist and left-hand twist in the fabric, if it is desired to decrease the tendency to distortion in the fabric.

Attempts carried out in respect of the manufacture of crepe fabrics from synthetic threads only, by applying to the latter the process normally employed for natural and artificial threads, have in practice so far resulted in failure. The characteristics of the synthetic threads are in effect such that if use is made of a steaming treatment, this causes the permanent setting of the twist and the shrinkage of the thread, resulting in an important reduction in the mechanical reactions responsible for the crepe effect.

The fabrics of the present invention have the advantage of being able to comprise only threads having a normal twist, say below 15 turns per inch; they are thus free from risk of distortion which always exists to a more or less marked extent in the known crepe fabrics.

In addition, they have a remarkable dimensional stability, whereas the hitherto known crepe fabrics stretched appreciably during use, which frequently made it necessary for the articles manufactured from these fabrics to be "altered" several times.

In addition, the manufacturing process is clearly simplified, since on the one hand it is not necessary for the threads to be over-twisted, which is a very costly operation, and on the other hand the weaving of threads having a normal twist is much easier than that of threads which are highly twisted.

The weaves used in the fabrics according to the invention may vary according to the crepe texture which is desired. The Examples which follow describe fabrics which are of particular interest.

Obviously, it is possible to influence the final appearance of the fabric by varying the total count and the filament count, twist, filament cross-section (circular, trilobal, hollow, etc.), and lustre (bright, dull, semi-dull, etc.) of the thread, particularly of the thread with high shrinkage. This latter may be in the fabric in juxtaposition with the thread of lower shrinkage or may even be used plied with thread of lower shrinkage, as a warp and/or as a weft.

The following Examples are given simply by way of illustration and do not limit the scope of the present invention.

EXAMPLE 1

A fabric with a "marbled" weave is prepared, using in the warp and weft:

(a) continuous threads of shrunk polyethylene terephthalate, with a count of 65 denier, 44 filaments, and a twist of about 7.7 turns per inch S, delustered with 0.7% of titanium dioxide, and having a circular cross-section and a shrinkage capacity in boiling water of at most 5%.

(b) continuous threads of bright unshrunk polyethylene terephthalate, with a count of 65 denier, 44 filaments and a twist of 3.9 turns per inch S, having a trilobal cross-section and a shrinkage capacity of 20% in boiling water.

The warp count is 112 threads to the inch, with the alternation: 1 shrunk polyester thread/1 polyester thread with a high shrinkage capacity.

In the weft, the density is 94 picks to the inch with the alternation: 2 picks of shrunk polyester thread/2 picks of polyester thread with a high shrinkage capacity.

The fabric coming from the loom is immersed for 10 minutes in a desizing bath kept at 100°C., which causes the crepe effect to appear, then pre-boarded on a tenter with hot air at 180°C., and dyed on the beam under pressure at 130°C.

EXAMPLE 2

A fabric with a "marbled" weave is prepared, using:

(a) continuous threads of shrunk polyethylene terephthalate, with a count of 45 denier, 22 filaments and a twist of 10 turns per inch S, delustered with 0.7% of titanium dioxide, having a circular cross-section and a shrinkage capacity at most 5% in boiling water.

(b) continuous threads of unshrunk polyethylene terephthalate, with a count of 45 denier, 22 filaments, and a twist of 3.9 turns per inch S, delustered with 0.7% of titanium dioxide, having a circular cross-section and a shrinkage capacity of 20% in boiling water.

(c) threads obtained by plying with a twist of 2 turns per inch Z from one ply of each of the above threads.

The warp count is 94 double threads to the inch with an alternation of: 1 shrunk polyester thread (a)/1 polyester thread having high shrinkage (b).

In the weft, the plied thread (c) is used with a density of 86 picks to the inch.

The fabric coming from the loom is then treated in the manner indicated in Example 1.

EXAMPLE 3

A fabric with a "flecked" weave is manufactured, using:

(a) continuous threads of shrunk polyethylene terephthalate, with a count of 45 denier, 22 filaments and a twist of 10 turns per inch S, delustered with 0.7% of titanium dioxide, having a circular cross-section and a shrinkage capacity at most 5% in boiling water.

(b) continuous threads of unshrunk polyethylene terephthalate, with a count of 45 denier, 22 filaments and a twist of 3.9 turns per inch S, delustered with 0.7% of titanium dioxide, having a circular cross-section and a shrinkage capacity of 20% in boiling water.

(c) threads obtained by plying at 2 turns per inch S from (a) a length of unshrunk polyethylene terephthalate continuous filament thread with a count of 65 denier, 44 filaments and a twist of 3.8 turns per inch S, delustered with 0.7% of titanium dioxide, having a circular cross section and a shrinkage capacity of 20% in boiling water, and (b) a length of a continuous thread of shrunk polyhexamethylene adipamide, with a count of 70 denier, 23 filaments and a twist of 5.1 turns per inch Z, having a circular cross-section and a shrinkage capacity at most of 5% in boiling water, and dyed black in the mass.

The warp count is 112 threads to the inch with an alternation of: 1 shrunk polyester thread (a)/1 polyester thread with high shrinkage (b).

In the weft, there is used the plied yarn (c) with a density of 96 picks to the inch.

The fabric coming from the loom is then subjected to the treatments indicated in Example 1.

EXAMPLE 4

A fabric with a "Tours taffeta" weave is manufactured with two threads and two picks,

using, in the warp and weft, threads obtained by plying at 2 turns per inch Z:
 (a) 2 plies of raw natural silk, with a count of 20/22 denier
 (b) 1 ply of continuous polyethylene terephthalate thread with a count of 45 denier, 22 filaments and a twist of 10 turns per inch S, delustered with 0.7% of titanium dioxide, and having a circular cross-section and a shrink-

age capacity of 20% in boiling water.
 The count in the warp is 112 threads to the inch and the density is 112 picks to the inch.
 The fabric coming from the loom is subjected to desizing in a boiling bath, which causes the appearance of the crepe effect, and then to pre-boarding with steam at 105°C. and to a dyeing operation.

polyester thread of shrinkage capacity at 100°C. of at least 15% (referred to as "high-shrinkage polyester thread") in combination with thread of a lower shrinkage capacity in the warp, weft and fabric used in the Examples. Percentages in the table are by weight.

Table 1 shows the percentage by weight of

TABLE 1

	Example 1	Example 2	Example 3	Example 4
<u>In the Warp</u>	alternation: 1 shrunk polyester thread of 65 denier	alternation: 1 shrunk polyester thread of 45 denier	alternation: As in Example 2	the Warp thread consists of: 1 ply of high-shrinkage polyester thread of 45 denier 2 plies of silk of 20/22 denier
% of high-shrinkage polyester thread	50	50	50	50.5 (calculated on 22 denier silk as in the warp)
<u>In the Weft</u>	alternation: 2 shrunk polyester threads of 65 denier 2 high-shrinkage polyester threads of 65 denier	the Weft thread consists of: 1 ply of shrunk polyester thread of 45 denier 1 ply of high-shrinkage polyester thread of 45 denier	the Weft thread consists of: 1 ply of high-shrinkage polyester thread of 65 denier 1 ply of shrunk 66 polyamide thread of 70 denier	
% of high-shrinkage polyester thread	50	50	48.1	50.5
<u>In the Fabric</u>				
% of high-shrinkage polyester thread	50	50	48.9	50.5

WHAT WE CLAIM IS:—

1. Process for the production of fabrics having a crepe appearance, which comprises heating to a temperature of at least 80°C. a fabric in which polyester thread of shrinkage capacity at 100°C of at least 15% constitutes substantially half the weight of the threads in the warp and weft together, which are in a repetition of at most 4, the remainder being of thread of lower shrinkage capacity.
2. Process according to Claim 1, wherein the fabric which is heated contains, besides the polyester thread of shrinkage capacity at least 15%, already shrunk polyester or polyamide thread of lower shrinkage capacity.
3. Process according to Claim 1, wherein the fabric which is heated contains, besides the polyester thread of shrinkage capacity at least 15%, thread of natural silk.
4. Process according to any one of the preceding claims, wherein the fabric contains substantially only thread of twist below 15 turns per inch.
5. Process according to any one of the preceding claims, wherein the polyester thread is of polyethylene terephthalate.
6. Process according to any one of the preceding claims, wherein the fabric is heated in boiling water.
7. Process according to Claim 6, wherein the fabric is heated in an aqueous desizing bath.
8. Process for the production of fabrics according to Claim 1 substantially as herein-before described.
9. Fabrics having a crepe appearance obtained by a process claimed in any one of Claims 1 — 8.

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